

## REGENCY LEVEL HOSPITAL UTILIZATION IN INDONESIA

M.H.W. Soetopo, Partiw Soemana<sup>1</sup>, N. Raharjo<sup>1</sup>, Haryadi Soeparto<sup>1</sup>,  
W. Tjindarbumi<sup>2</sup>, M. Bastaman<sup>3</sup>, Sarwanto<sup>1</sup>, Lestari Kantiwilujeng<sup>1</sup> and C. Handoko<sup>1</sup>.

*Adanya rumah sakit tingkat kabupaten adalah merupakan tempat perawatan pertama untuk para penderita dan karena itu harus dapat memberikan perawatan minimal kepada para penderita. Rumah sakit sekurang-kurangnya memiliki seorang dokter umum yang bekerja penuh walaupun tidak terdapat tenaga specialist. Kapasitas tempat tidur pada rumah sakit kabupaten bervariasi antara 40 dan 300 t.t.*

*Latar belakang penelitian ini dilakukan karena adanya pemanfaatan rumah sakit yang sangat kurang sehingga pelayanan yang diberikan oleh rumah sakit tidak ada manfaatnya. Untuk itu maka perlu dilakukan usaha-usaha guna memperbaiki efisiensi dan efektifitas pelayanan dirumah sakit berdasar atas sumber-sumber daya yang ada.*

*Pemanfaatan pelayanan rumah sakit oleh masyarakat dipengaruhi beberapa faktor seperti berikut : faktor-faktor yang berhubungan dengan penderita dan faktor-faktor yang berhubungan dengan kesempatan misalnya tersedianya waktu, jarak dan keuangan. Oleh karena itu dalam penelitian ini dilakukan analisa mengenai faktor-faktor yang mempengaruhi penderita seperti umur, jenis kelamin, pendidikan, kebiasaan, agama, penilaian tugas-tugas dari pelayanan kesehatan oleh masyarakat. Selanjutnya hasil penelitian ini diharapkan dapat dipergunakan sebagai dasar untuk keperluan perencanaan program pelayanan kesehatan.*

The regency level hospital in Indonesia is the first place of referral for inpatient care, and should be able to provide basic emergency care. This type of hospital has at least one full time general practioner (physician) but no specialists attached to it. Capacity ranges between 40 and 300 beds. This study was conducted because there were indications that many of this type of hospitals were under-utilized, giving thus an impression that most of the already scarce resources for producing these services are being wasted. Since hospitals absorb most of the already limited resources of the health field, it seems justified that efforts should be concentrated in improving the efficiency and effectiveness of these services.

The term hospital utilization denotes the manner in which a certain community makes use of its hospital resources. Utilization of hospitals as well as other types of health services by the community are influenced by : factors associated with patients decision making (objective need and perception that need exists), factors associated with patients opportunity for action (availability and accessibility in terms of cost, time and distance) Utilization analysis must therefore incorporate the study of various variables which may influence utilization, such as : age, sex, educational level, habits, custom, religion and appreciation of the work of available health service institution (s) by the community. The above mentioned analysis is one of the basic requirements for the proper planning and organization of health services. It is within this framework that this study on the utilization of regency level hospitals was carried out by the Ministry of Health's. Health Services Research and Development Centre in Surabaya.

<sup>1</sup>Health Services Research and Development Centre, Surabaya.

<sup>2</sup>Directorate General CDC, Jakarta.

<sup>3</sup>Health Ecology Research Centre, Jakarta.,  
Received 2 February 1976.

Type of hospital	Owner's state	Location of hospitals
Regency level hospital (no specialist attached to the hospital).	I. Private (Philantropic)	1. Mojowarno
		2. Lebak
	II. Regency Government	3. Kabanjahe
		4. Sumedang
		5. Indramayu
		6. Wonosobo
		7. Wonogiri
		8. Lumajang
		9. Pamekasan
		10. Singaraja
		11. Tondano
		12. Martapura
Intermediate level hospital (with at least one specialists attach to the hospital).	III. Provincial Government	13. Tarakan
	Provincial Government	14. Kupang
		15. Purwokerto

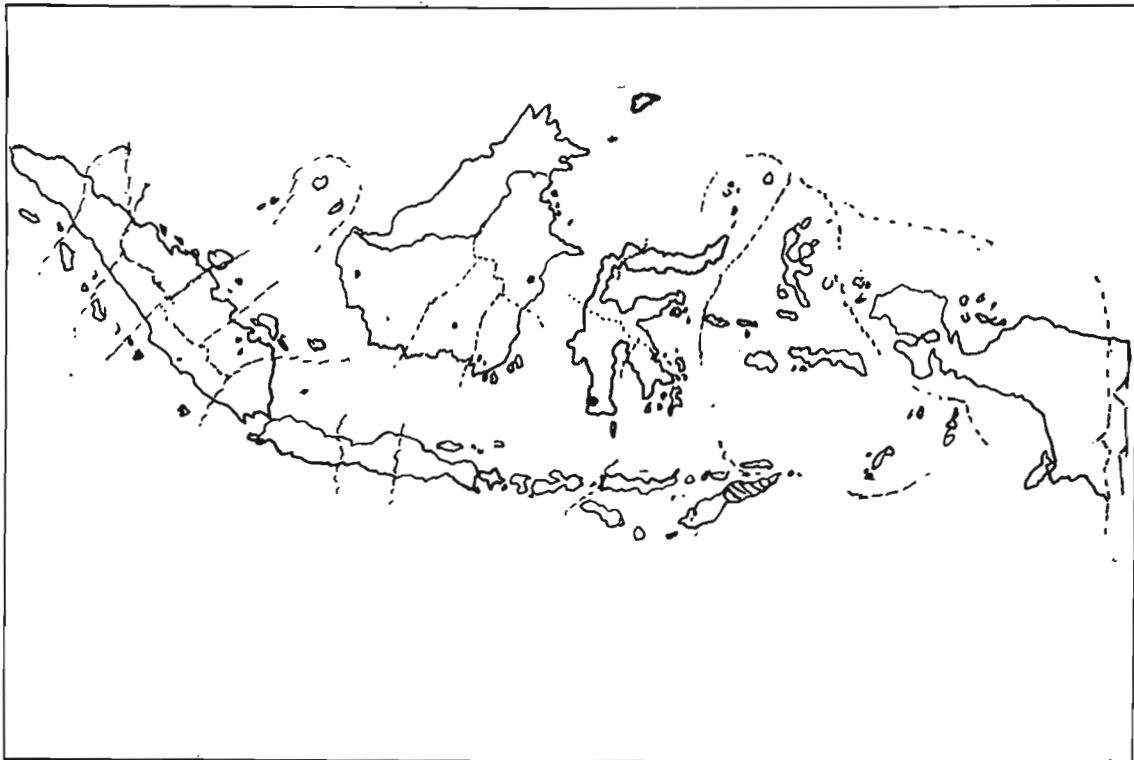


Figure 1 Location of the various hospitals studied.

## MATERIALS AND METHODS.

This study was conducted prospectively in fifteen regency level hospitals in Indonesia for a period of six months (June – November 1972), in order to cope with possible seasonal variations of diseases.

Hospitals included in the study were: (Fig 1).

Several criteria were used in the selection of hospitals studied, these were: It must be a regency level hospital with at least one physician attached to it. One intermediate level hospital was chosen additionally as comparison, it should have a capacity of at least 80 beds, it should be located within the 150 kilometers radius from the provincial capital, because of limited time available to supervise data collection.

Data collected for this study were: Extract of patient records, which were put on a specially designed form for this study (a.o. central register number for possible trace back, age, sex, address, occupation, diagnosis, length of stay, various examinations carried out, treatment and cost paid by the patient at discharge), data about the hospital, lay out, beds available, equipments, manpower (by category) and running cost of the hospital, data about the overall activities output of the hospital (including out-patient and other ac-

tivities if present), availability of other types of health services in the area, population data of the regencies, assessment of the overall capability of regency level hospital staff in relation with availability of equipment, was carried out by a team of medical specialists of the Airlangga University Medical School. This team consisted of a pediatrician, obstetrician and gynaecologist, a surgeon and a specialist in Internal Medicine.

Data were collected by the hospital staff on specially designed forms prepared for this study. Instructions and supervision of data collection were carried out by members of the study group. Processing was carried out at the Health Services Research and Development Centre in Surabaya. For classification of diseases, the International Classification of Diseases, 1965 revised edition was used.

## RESULTS

Analysis of data obtained showed that during the period of the study a total of 16429 patients were hospitalized in all hospitals. Number of patients admitted into the various hospitals varied between 370 and 1843 in the regency level hospitals and between 1590 and 3110 in the provincial level hos-

Table 1 Hospital Capacity in relation with average length of stay and occupancy ratio

H o s p i t a l	Registered Capacity	Actual Capacity	Number of Patients	Total Patient-days	Average length of stay	Occupancy rate — *) (in percentage)
1. Mojowarno	140	161	871	9444	10.84	32
2. Misi Lebak	89	100	722	7872	10.90	43
3. Kabanjahe	300	300	1223	12296	10.05	23
4. Sumedang	100	85	1370	9301	6.79	60
5. Indramayu **)	160	83	497	2835	5.70	19
6. Wonosobo	135	135	1062	7829	7.37	32
7. Wonogiri	100	68	783	5088	6.50	41
8. Lumajang	150	154	982	7796	7.94	26
9. Pamekasan	100	67	378	2921	7.73	24
10. Singaraja	250	190	1843	13831	7.50	40
11. Tondano	150	89	804	8463	10.53	52
12. Martapura	50	52	525	2559	4.87	27
13. Tarakan	110	72	669	6110	9.13	47
14. Kupang	200	165	1590	13940	8.77	46
15. Purwokerto	350	350	3110	30185	9.71	47
All Hospitals	3384	3071	16429	140470	8.55	37

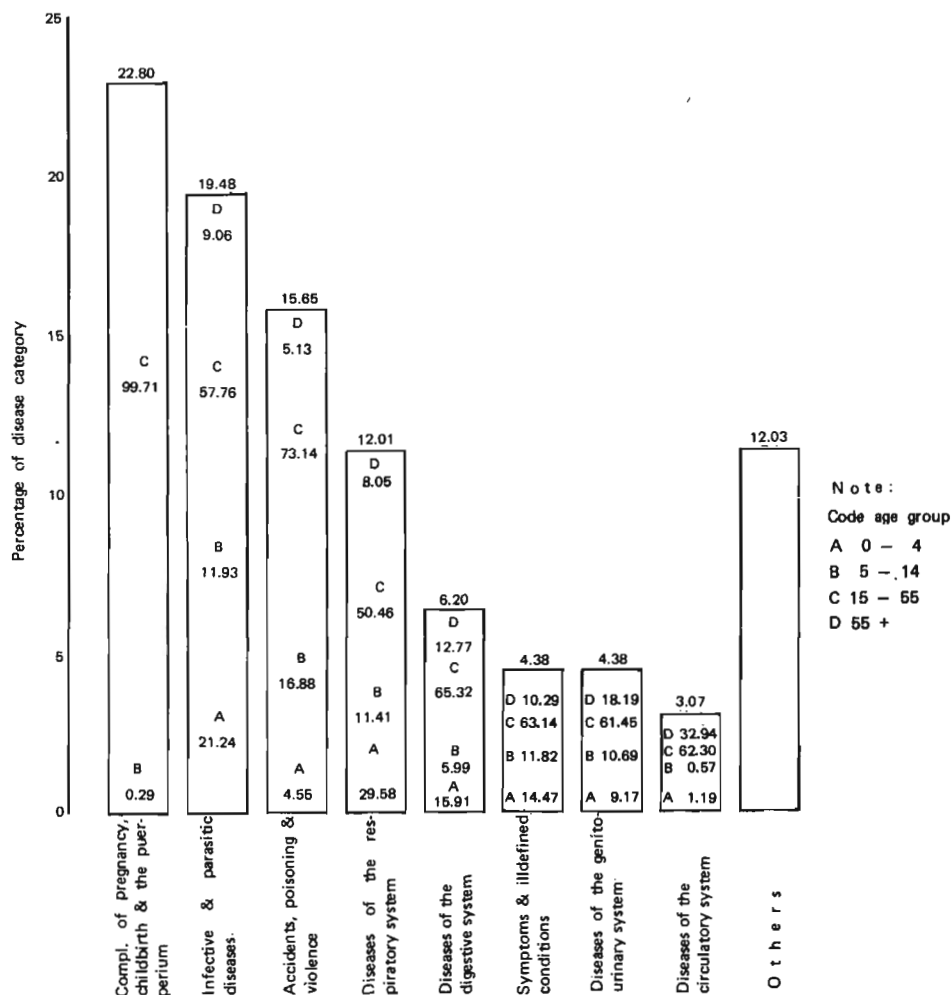


Fig. II Age distribution by disease category of patients in all hospitals studied.

pitals. Average length of stay in all hospitals studied were found to be ranging between 6 and 11 days with an average of 9 days. Occupancy ranged between 18 and 60 percent. Detailed data about the various hospitals is outlined in Table I.

Disease pattern in hospitals studied showed, that four main group of disease constituted the main case load of these hospitals which were: Fig II.

Complications of pregnancy, childbirth and puerperium (23 percent of all cases, while if normal deliveries were omitted, it constituted only 10 percent of all cases), infective and parasitic diseases (19 percent of all cases), accidents, violence and poisoning (16 percent

of all cases), diseases of the respiratory system (12 percent of all cases).

These four disease categories seemed to be consistently the major case load in all hospitals studied, although some differences in the order of magnitude were observed in some hospitals.

In the infective and parasitic disease group, it was generally found that the highest case load in this group was diarrheal diseases (34 percent of all cases in this group) followed by pulmonary tuberculosis (24 percent of all cases in this group), typhoid fever (10 percent of all cases in this group), tetanus (6 percent of all cases in this group) and malaria

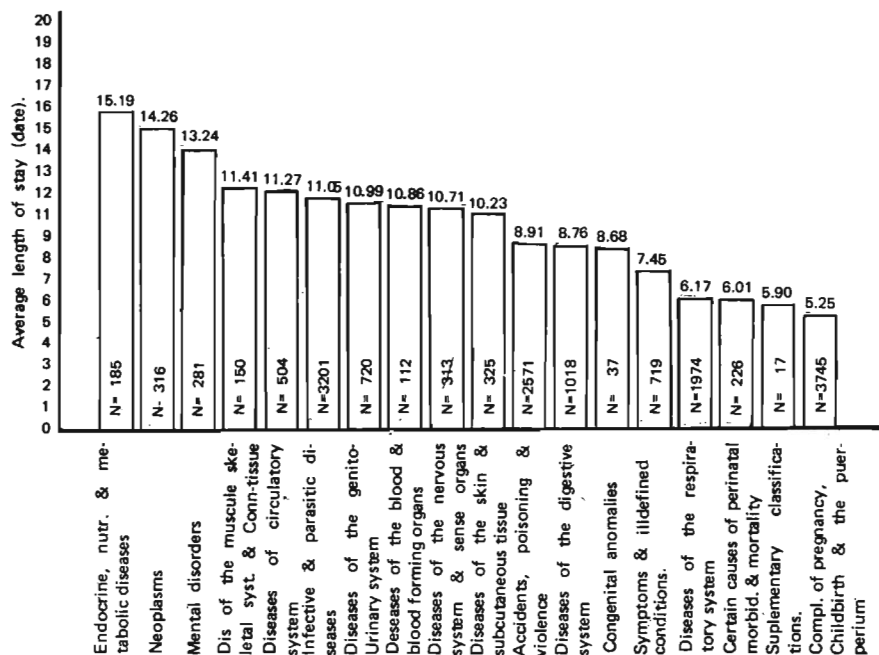


Fig. III Average length of stay by disease category in hospitals studied.

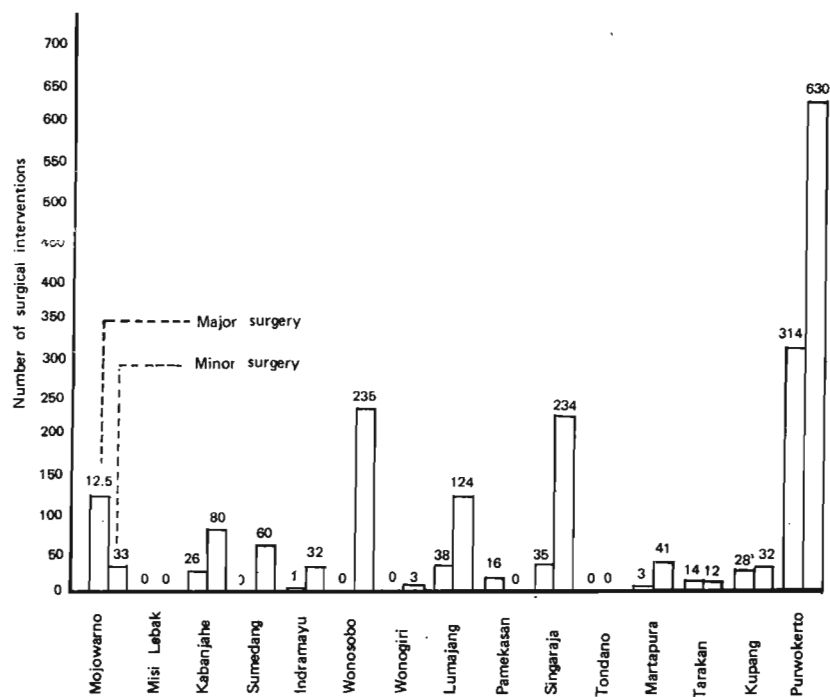


Fig. IV Type and number of surgical intervention performed in all hospitals studied.

(5 percent of all cases in this group).

The analysis of the type of treatment given in the various hospitals showed that in 77 percent of all cases it was medical treatment, in 8 percent of all cases it was surgical treatment, and in 15 percent of all cases it was for maternity and gynaecological treatment. Number and type of some surgical interventions performed in the various hospitals studied are outlined in Figure IV.

The analysis of the various age groups utilizing the various hospitals showed that 22 percent of all cases were children up to fifteen years, consisting of 13 percent of all cases of children below five years, and 9 percent of children between five and fifteen years. Productive population group (15 – 45 years) constituted the main age group utilizing the hospitals (61 percent of all cases).

Since no official stratification exist in Indonesia, for the purpose of this study it was tried to group the patients into occupational groups (occupation of head of household). Analysis showed that 44 percent of all patients were farmers, farmhands and labourers; civil ser-

vants (23 percent of all patients); retired and dependants (12 percent of all patients) Figure V.

Source of referrals of cases admitted to the various hospitals were found to be mostly their relatives/friends of the patients, in 62 percent of all patients, while medical doctors (16 percent all patients) and health facilities (13 percent of all patients) were second and third source of referral to the hospitals Figure VI.

Outcome of hospitalization showed that 72 percent of all cases were discharged as cured, 19 percent of all cases were discharged as relieved, while only 1 percent of all cases were not cured. Figure VII.

The mortality in all these hospitals was 6 percent of all cases (range between 3 – 9 percent). Referrals to a higher echelon hospital which were better equipped and staffed, constituted only 2 percent of all admittance.

Hospital resources and operational cost.

Studying the operating costs of the hospitals can not be separated from the study of the resources of the hospital (manpower, material and money). The study on the operation

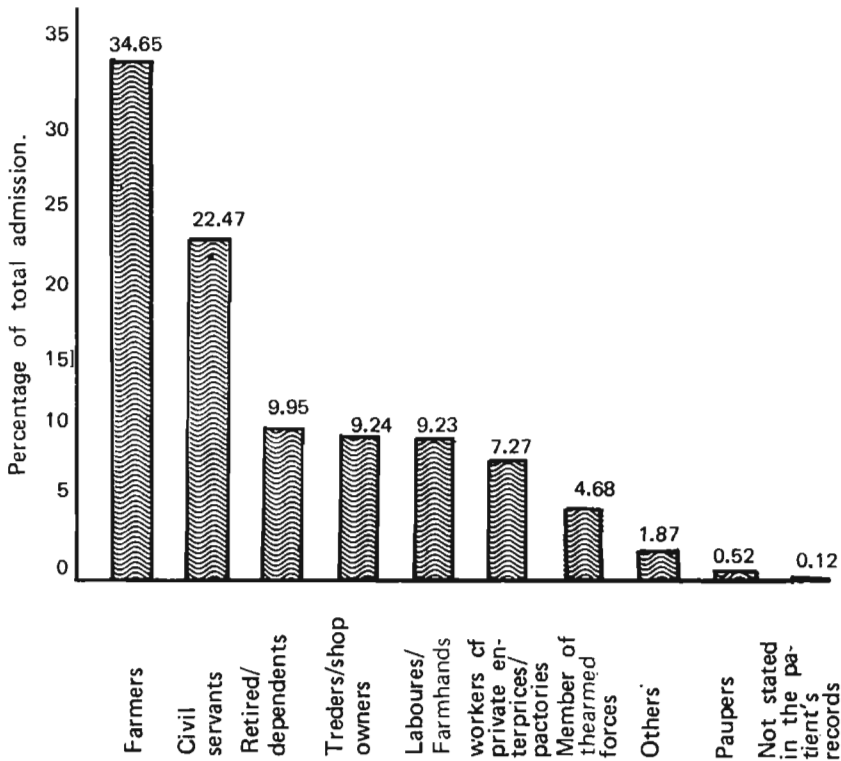


Fig V. Occupational status of patients admitted in all hospitals studied

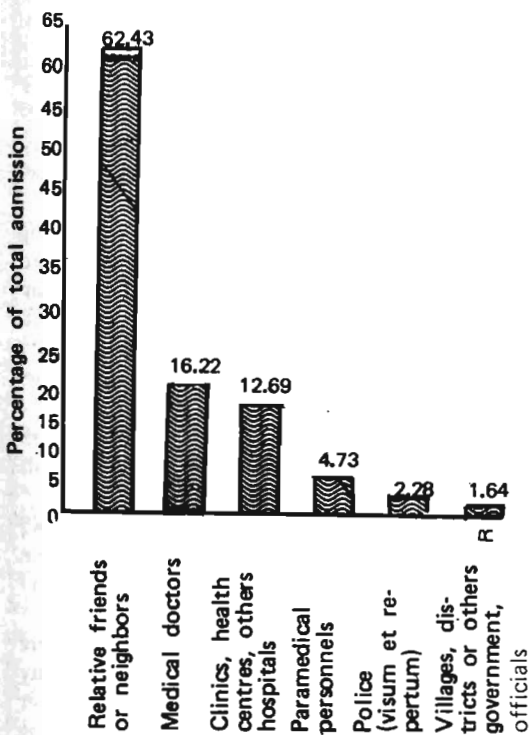


Fig. VI Source of referrals of patients admitted in hospital studied.

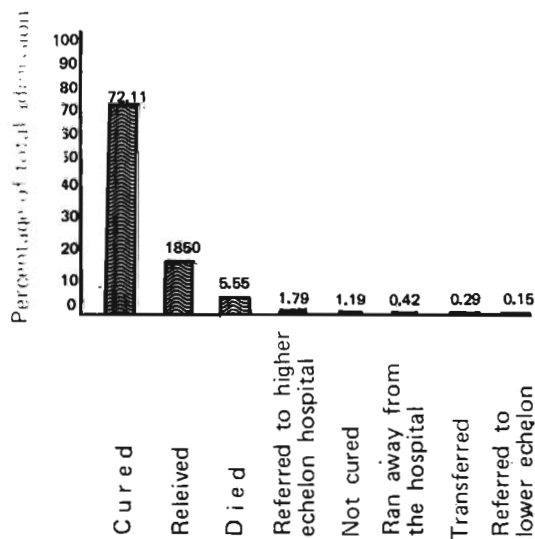


Fig. VII Outcome of hospitalization in the various hospitals in hospitals studied.

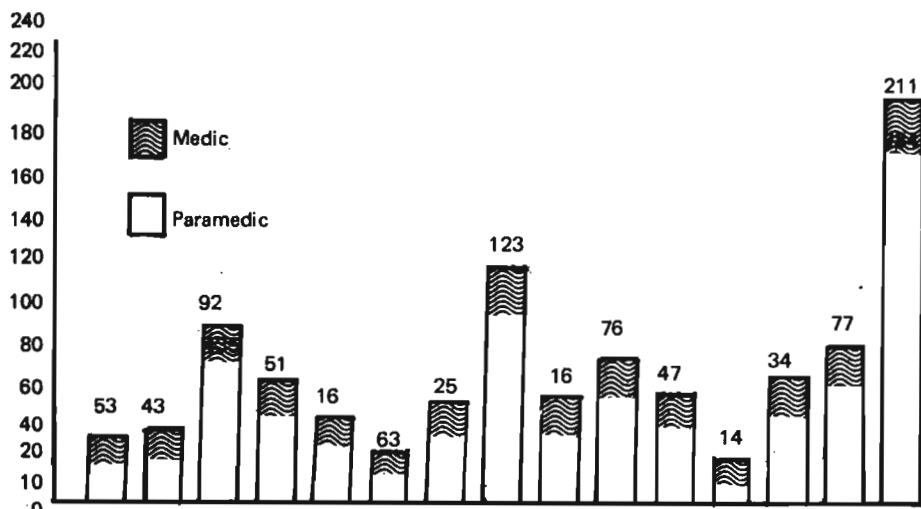


Fig. VIII Staffing patterns of various hospitals studied.

cost of the hospitals was done by two economists, while assistance was obtained from the Airlangga University School of Medicine in assessing the capability of the staff in relation

to available equipment in four out of the fifteen hospitals in this study.

Hospital staff: Analysis about the staffing pattern in the various hospitals showed that in

general, the bed ratio to staff (including non medical and non paramedical staff) were found to be 1.3 to 1 (the usual yard stick used for staffing hospitals in developing countries is 1/1). It varies between a bed/staff ratio of 2 to 1 and 1 to 1.3.

The ratio between medical and paramedical personnel to administrative and other personnel was found to be 2 to 1 (range 1 to 1 – 11 to 1). Figures VIII and IX.

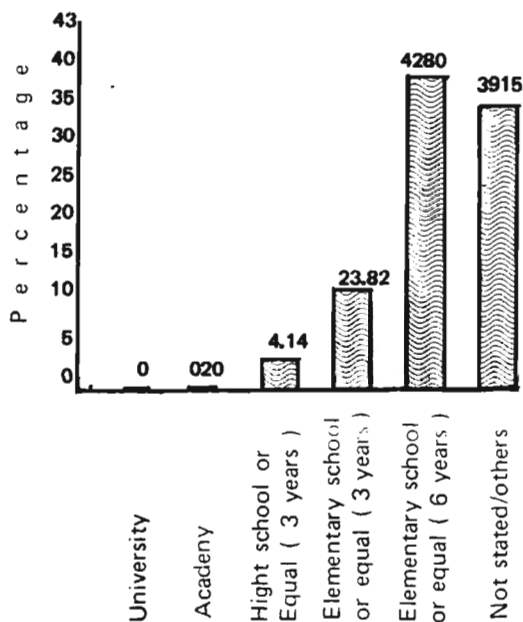


Fig. IX Levels of education of administrative and other staff in all hospitals studied.

Observational visits were done in order to know whether the capability of the staff may have some effect on the utilization of these hospitals.

Four specialists from the Airlangga University Medical School visited four hospitals in this study and concluded that equipment (although some needed replacements) in these four hospitals were adequate to cope with emergency cases, but it seemed that the capability varied considerably from one hospital to the other.

Hospital equipment: Most of the hospitals studied (except Tondano and Rangkasbitung) seemed to be adequately equipped to cope with

emergency cases, although in some, additional equipment are needed.

It was observed that in some hospitals there was a great need to upgrade their supporting services, such as the laboratory, kitchen, laundry and to improve its water supply even in some, their buildings.

Hospital operating cost: The annual operating cost of these various hospitals was calculated by taking the average of three previous consecutive years operating costs, and then transformed it using 1973 as baseline year.

It was found that the annual operating cost were: Rp.13 million (in hospitals with 10 – 75 beds), Rp.29 million (in hospitals with 75 – 250 beds), Rp. 45 million (in hospitals with 250 – 500 beds).

Amortization of capitals ranging between Rp.2 million to Rp.16 million has already been deducted from the above mentioned calculations.

The estimated costs per-patients-day were found to range between Rp.5 thousands/day (in smaller hospitals) to Rp.1 thousand per day (in bigger hospitals), while the operating cost/bed/year had a range between Rp.353 thousands/year (in small hospitals) and Rp.168 thousands (in bigger hospitals).

Further it was found in this study that there were big discrepancies between the operating cost and the hospitals income from patients. These differences ranged between 75 to 91 percent of the annual operating cost, as illustrated in the following table 2.

These above mentioned differences must be provided by the Government or other sources in order to secure the continuity of these hospital services.

Table 2 Difference between hospitals expenditure and income from patients.

Type of Service	Difference between Hospitals expenditure and income (in percentage of operating cost)		
	Hospitals with 10 – 75 beds	Hospitals with 75 – 250 beds	Hospitals with 250 – 500 beds
In patient	84	80	88
out-patient	66	73	94
Total	75	77	91



## DISCUSSIONS

The regency level hospital in Indonesia, is an institution providing outpatient as well as in-patient accommodation for medical and nursing care and have at least one general practitioner as its permanent staff.

This type of hospital is the first place of referral for in-patient care, and should be able to provide basic emergency care, because often it is the only hospital available in the area. One of the hospitals studied was situated on an island, Tarakan hospital. Utilization of health facilities that is the way the community used its health facility resource was determined by the existence of needs (vulnerability to disease, injury and disability) which was in turn greatly influenced by barriers to access (predisposing and enabling factors).

**The need for services:** A household survey in Indonesia (Sulianti, et al 1972) showed that 50 out of 1000 persons are found to have a morbid condition, of which 25 percent occur in children below five years. Most prevalent disease found were, acute upper respiratory tract diseases, skin diseases, tuberculosis, acute lower respiratory tract infections, diarrheal diseases, malaria and eye infection. About 22 percent of diseases found could be grouped as infectious diseases. These findings were also reflected in findings of this study, whereby it was found that the main case load of the hospitals studied were mainly belonging to four categories of diseases namely.

Infective and parasitic diseases (19 percent of all cases); accidents, violence and poisoning (16 percent of all cases); diseases of the respiratory system (12 percent of all cases); and complications of pregnancy, childbirth and puerperium (10 percent of all cases, after normal deliveries have been omitted from the calculation).

Most of the diseases occurring in the infective and parasitic diseases category belong to a group of diseases which can be considered as *preventable diseases*.

It can therefore be concluded that the main case load of those hospitals were infectious diseases, which type, one way or the other was associated with harmful ecological and environmental conditions.

It was further found that the disease pattern in the regency level hospitals did not differ

very much from the intermediate level hospitals where more specialistic care was available or were being provided.

**The utilization of hospital resources:** Findings of the present study that in general the bed occupancy rates found were low, ranging between 18 and 60 percent.

However it should be kept in mind that this rate or any other indices of hospital utilization alone or by itself can not give a full picture of the utilization pattern in a certain area. This was also mentioned earlier, that needs, need not reflect itself in utilization, but there are still barriers to access in between these two poles. This deemed the study team necessary to probe further on these matter.

The barriers to access to any health services as was mentioned earlier are:

### Predisposing Factors

This factor has more or less to do with demographic characteristics of the person or population (age, sex, ethnic group, education economic level) and the social, psychological characteristics of the person or community (knowledge, attitude/satisfaction with previous services).

Results of this study showed that in general as many males were admitted into hospitals as females. However it was observed that more male children age less than five years were admitted, while more females were admitted than males in the productive age group which may be caused by the high proportion of normal deliveries being carried out in most of the hospitals.

Concerning the social, psychological characteristics of persons or community, the household survey (Sulianti et. al. 1972) found that reasons for not coming to the health facilities were: distance 15 percent, financial 28 percent, non availability 7 percent, not satisfied 3 percent, not necessary 27 percent, others 1 percent, intended to visit 19 percent.

The same study found that patterns of seeking care (type of treatment for illnesses) were as follows: medical and paramedical treatment 37 percent, medicine man (dukun) and other 5 percent, self treatment 14 percent, no treatment 44 percent. The before mentioned pattern of seeking care may give some indications

about the knowledge and attitude of a person or community.

It can be concluded from the above findings that barriers of cost and distance and people's attitude in health & disease seemed to play an important role patients decision in seeking health care.

In trying to understand what people did prior to admission to the hospital, a special questionnaire was added to the study, whereby patients were asked about their first contacts with various kind of medical services (stress was put on the person not the institution), and how long they had been ill prior to admission.

The total questionnaire returns were 9863 out of the expected 16429 (total patients in all hospitals), 60 percent returns.

The percentage of questionnaire returns varied from hospital to hospital, between 30 and 72 percent (see table). One hospital did not return the questionnaires (Kupang Hospital).

The following findings about previous contact with medical services prior to admission, were found: no contact 38 percent, contacted medical doctor 25 percent, contacted paramedical 31 percent, contacted traditional medical practitioner 5 percent, contacted others not mentioned above 1 percent.

Results further showed that 77 percent of the patients tended to contact one of the above mentioned services within the first week prior to admission.

In trying to understand what group of diseases moved the people to seek a particular medical service mentioned above, an analysis was done on the type of diseases of the questionnaire returns.

Findings were as follows:

#### Complications of Pregnancy

Childbirth and Puerperium	20 percent
Infective and Parasitic Disease	20 percent
Accidents, Poisoning and Violence	17 percent
Diseases of the Respiratory System	12 percent
Diseases of the Digestive System	6 percent
Diseases of the Genito-Urinary System	5 percent
Symptoms and ill Defined Conditions	5 percent
Others	15 percent

All the above mentioned findings including the findings on the source of referrals of

patients coming to the hospitals, enabled to conclude that people's decisions to utilize the hospital resources was a delayed process, and mostly dependent or influenced by relatives. This was probably a reflection of the so called "interrupted referral system", whereby patients might have consulted some type of medical service on time, but decisions to be admitted were delayed.

### Enabling Factors

Socio economic characteristics of patients: This was an influential factor in motivating patients to utilize health facilities resources.

Analysis showed that most of the patients admitted were farmers, farmhands and labourers, and civil servants (67 percent). Cost of medical services of civil servants in Indonesia are however partially covered by an insurance system for civil servants. The other groups have to pay fully from their own resources for services rendered by the hospital.

Health service availability: Population coverage found in hospitals studied (omitting other hospitals, if present) were calculated using the assumed population at risk for hospitalization as denominator (derived from the household survey findings, Sulianti et al., 1972 as denominator, where it was found that only one third of patients which in reality needed hospitalization are hospitalized) were found to be low.

Most of the people utilizing the hospitals came from the same town where the hospitals were situated or the immediate neighbouring districts, table 3

This supports the previous conclusion that distance played an important role in a persons decision to use a health facility resource.

Other factors which might contribute to this low coverage may be related to:

*Hospital beds availability.* Bed-population ratio, were found to be generally low (omitting other hospitals, if present, in the area), ranging between 0.14 - 1.65 per thousand population, and the people admitted to the hospitals in areas where they are situated, constitute 0.10 - 1.34% of the population (based on presumed annual admission divided by the total population of the area).

*Hospital resources.* It has been shown in this study that the regency level hospitals have a

Table 3 Percentage of admissions coming from the same towns where hospitals located, were as follows:

Hospital	Total Number of pa- tients admitted	Number of Patients co- ming from the same town	Percentage
Mojowarno	871	231	27
Misi Lebak	722	481	67
Kabanjahe	1223	506	41
Sumedang	1370	863	63
Indramayu	497	162	33
Wonosobo	1062	452	43
Wonogiri	783	347	44
Lumajang	983	328	33
Pamekasan	378	200	53
Singaraja	1843	960	52
Tondano	804	579	72
Martapura	525	413	79
Tarakan	669	615	92
Kupang	1590	1323	83
Purwokerto	3110	933	30
All hospitals	16429	8393	51

low bed-occupancy rates and a low population coverage, while costs to operate these hospitals ranges between Rp. 13 million (in small hospitals) to Rp. 45 million annually, which will certainly increase in the years to come. Efficiency and effectiveness in running these hospitals are therefore a prerequisite effort.

*Hospital staff.* From observations made by four specialists of the Airlangga University Medical School in four of the fifteen hospitals it was concluded that although in these four hospitals observed, the equipment were adequate (although some needed replacements) to cope with emergency care, the ability and initiative varies considerably from hospital to hospital.

This seemed to be also true in the other hospitals in the study.

They summarized their findings by stating that what is needed is some arrangement to train the medical 4 paramedical staff on the spot in order to improve the capability of the whole hospital staff, which may result in an increase of the quality of services. Attention should also be given to administrative personnel.

Although quality of the services in these hospitals also determine the rate of utilization, it

is not the main and sole factor.

Hospitals operate in what economists call "sellers market". Consumers are not influential, in fact they are largely ignorant of the services they "desire" and cannot dictate what supplier provide. Theorists even argue over whether patients are, in fact, the true consumers of hospital services. In many ways physicians, because they requisition most hospital care, fit the formal definition of "consumers"\*)).

*Hospital equipment:* Although it can be stated that most hospitals are adequately equipped, a number of these equipments may need replacements.

It is desirable to have a standard list of regency level hospitals equipment (to be able to cope with emergency cases).

Much attention should also be made in improving its supporting services such as, laboratory, kitchen and laundry and water supply system.

*Hospital operational cost:* Findings in this study have shown that there are great differences between income and expenditure of these regency level hospitals, the gap of which must be closed by Government or other sources.

Possible other sources of income, such as Health Insurance Scheme, or other means should be looked upon to lessen the big gaps the hospitals/government has to overcome.

*Hospitals supplies:* As a result of the above mentioned gap in funding, it can be stated that all hospitals have problems in securing supplies for the continuity of their services. In most cases patients had to get their prescriptions from local drugstores.

The availability and utilization of other means of health services are also influential in determining the flow of patients to these hospitals, table 4.

These above mentioned figures were for 1972. Although names and typing has recently been changed and standardized, the above figures might give some idea about the density of various facilities in each regency where the hospitals studied are situated.

Unfortunately data about utilization of the

\*) Blum, Hendrik. L. editor: Health Planning 1969  
Publisher: A.P.H.A. Western Regional Office  
San Fransisco, U.S.A.

Table 4 Health facilities availability (Govt &amp; Private) in 1972; were as follows

Regency	Hospitals	Maternity Hospitals	Health Centre (With & without doctors)	Plyclinics	MCH. Centre
Jombang	2	2	17	16	44
Lebak	4	—	9	30	9
Karo	2	—	43	26	10
Sumedang	1	—	23	71	22
Indramayu	1	—	17	19	17
Wonosobo	1	—	7	35	25
Wonogiri	1	—	32	—	—
Lumajang	4	—	18	34	19
Pamekasan	1	—	2	12	11
Singaraja	2	—	11	31	35
Minahasa	8	—	21	86	75
Martapura	2	—	16	7	1
Bulongan	1	—	9	27	3
Purwokerto Hospital Serving the Residency of Banyumas (covering 4 regency).	5	—	46	60	76

above mentioned facilities could not be obtained.

Health services price to consumers: It was mentioned earlier that travelling time/distance to health facility played an important role in peoples decision to utilize a particular health facility and so are fees/charges of the hospitals.

Little is known, but indications were shown about attitude of people who do not use health facilities. Further nothing could be said about social-distance, attitude of health providers and professional doctor/other staff — patient contact.

These last mentioned factors, may have to be studied in the near future in order to be able to understand people's attitude in health and disease and also towards various type of health services, to come to the overall conclusion about patterns of utilization.

From the above mentioned discussion, a conclusion may be derived, that low coverage/utilization of hospitals resources available are caused by various factors, ranging from peoples attitude towards health services to inherent economical and capability factors within the health services.

To conclude analysis on utilization of regency level hospitals, it may be stated that low utilization of hospital facilities such as were found in this study, are probably caused by a multiplicity of factors, ranging from factors involving perception of illness, initiation of need and demand and the consumption of derived demand\*) for medical commodities (services).

An attempt was done to analyze these factors although this was outside the boundaries of this descriptive study on regency level hospitals utilization. Further intensive studies should be carried out on the various factors influencing the consumptions of medical commodities.

## SUMMARY

A study on the utilization of several regency level hospitals in Indonesia was conducted by the Health Services Research and Develop-

\*) derived demand — demand for a commodity resulting from consumption of another.

ment Centre in Surabaya during the months June to November 1972.

Results obtained showed, that: the four most common diseases treated in these hospitals were: Infective and Parasitic Diseases (19 percent), Accidents, Violence and Poisoning (16 percent), Diseases of the Respiratory System (12 percent), Complications of Pregnancy, Childbirth and the Puerperium (10 percent, after normal deliveries were deducted); the population coverage of these hospitals were found to be low (0,10 - 1,34) percent; the Bed-occupancy rate was found to be low (18 - 60) percent; the average length of stay was in general 8.55 days (minus normal deliveries it was 9.15 days); the hospitals were mainly serving people of the town and area (districts) where the hospital is situated; the operational cost of these hospitals were found to range between Rp. 13 million (in small hospitals) and Rp. 45 million (in bigger hospitals).

Further it was found that the difference between the expenditure and income of these hospitals ranged between 75 to 91 percent of

the annual operational cost.

An attempt was made to analyze the various factors which might contribute to the cause of under utilization of these regency level hospitals. These factors range from a need for services to actual utilization of hospital services and the influence of the barriers to access (demographic, social psychological factors, educational, economical factors, the organization of health services/availability and the price to consumers of hospital services).

## ACKNOWLEDGEMENTS

The Health Services Research and Development Centre in Surabaya and the authors would like to express their sincere gratitude to all Provincial Health Officers and staff, Regency Medical Officers and staff, Directors and staff of the hospitals where this study was conducted, without whose cooperation and assistance this study could not have been carried out.

## REFERENCES:

- Bryant, John Publ. (1969) Health and Developing, World Cornell University Press. Ithaca and London
- Bridgman, R.F. Publ. (1955) The Rural Hospital (Its Structure & Organizations). W.H.O. Monograph Series 21. W.H.O. Geneva.
- Population Census Publ. (1971) Biro Pusat Statistik Jakarta
- Feldstein, Martins. Publ. (1967) Economic Analysis For Health Services Efficiency (Econometric Studies of The British National Health Services), North Holland Publishing Company, Amsterdam
- Ginzberg, Eli Publ. (1950) A Pattern for Hospital Care (Final Report of the New York State Hospital Study), Columbia University Press, New York
- King, Maurice Publ. Medical Care in Developing Countries, Oxford University Press, Nairobi.
- Kajtaranta, H. and Purola Tapani Publ. A Systems-Oriented Approach to the consumption of Medical Commodities. Social Science and Medicine 1973, Vo. 7, pp 531 - 540.
- Navarro, Vincente Publ. Planning Personal Health Services A Markovian Model. Department of Medical Care and Hospital The John Hopkins University, Baltimore, Maryland
- Purola, Tapani; Kai Sievers; Esko Kalimo and Kauko Neyman Publ. (1968). The Utilization of the Medical Services and its relationship to morbidity, Health Resources and Social Factors. (a survey of the Population of Finland Prior to the National Sickness Insurance Scheme), Research Institute for Social Security, Helsinki, Finland
- Sulianti, (1972) Household Survey in Indonesia, Board for Health Research and Development Jakarta
- W.H.O. Chronicle, Publ. (1971) Vol. 25, No. 1, January, The Economics of Health and Disease. W.H.O. Geneva.
- World Council of Churches August 1967 A Manual for the conduct of surveys of Christian Medical Work (prepared by J.C.McGilvray for world council of churches Committes for Specialized Assistance to Social Projects, Geneva, Switzerland, Document KA/SASP/149/67.

W.H.O. Technical Report Series Publ.

(1957) 122, Role of Hospitals in Programmes of Community Health Protection.

(1967) 350, National Health Planning in Developing Countries.

(1969) 429, Statistics of Health Services and of their activities.

(1971) 472, Statistical Indication for the

Planning and Evaluation of Public Health Programmes, W.H.O. Geneva.

Widodo Soetopo, M.H. and Soemana Partiw  
Publ. (1973). An analysis of the utilization of two general hospitals in the Pasuruan regency (1971) Bulletin of Health Studies in Indonesia, Vol. I, No. 1 pp 24 - 31